



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,453	01/13/2006	Toshio Takeshita	282057US6PCT	3508
22850	7590	09/18/2009		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
KWON, ASHLEY M				
ART UNIT		PAPER NUMBER		
1795				
NOTIFICATION DATE		DELIVERY MODE		
09/18/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary

Application No.

10/562,453

Applicant(s)

TAKESHITA ET AL.

Examiner

ASHLEY KWON

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18, 20-27, 29 and 30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18, 20-27, 29, and 30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- _____
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)

Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

In response to the amendment received August 24, 2009:

- a. Claims 1-18, 20-27, 29, and 30 are pending;
- b. Claims 1, 8, 17, and 24 are amended and Claims 31-33 were canceled;
- c. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn and new rejections have been applied to the claims.

Claims Analysis

Regarding claims 1, 8, 17, and 24, it is unclear what "a distance that the **electrode** of the battery-side terminal" is measuring. From fig. 1, it seems that X1 measures the distance of the battery side terminal. Fig 2 also shows wiring members (1204) connecting the electrodes of the battery, but they appear to be on either side of the battery side terminal (14). Therefore the "distance that the electrodes of the battery-side terminal extend" seems to be longer than X2, the length of the convex portion (1024). For the purposes of this rejection, since the configuration of the convex portion (1024) is to prevent entrance of foreign matter from contacting the connections between the battery-side terminal (14) and the attachment section-side terminal (32), this limitation will be interpreted as the convex portion extending the width direction a distance greater than the battery side terminal extends. Applicant is advised to change

"electrodes of the battery side terminal" to "battery-side terminal" since "electrodes" can mean a variety of battery parts including the anode, cathode, and terminal.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

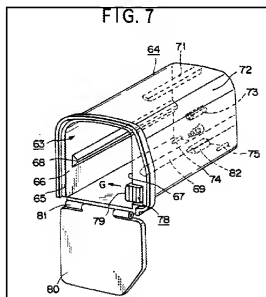
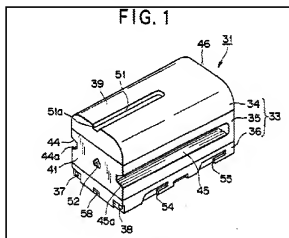
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4, 6, 7, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsui et al. (US Pat. No. 5,626,979) (hereinafter "Mitsui") in view of Victor Company of Japan, Limited (Laid-open No. Hei 1-155654) (hereinafter "Victor") and Ebine (WO 03010840) (for the purposes of this rejection US 2004/0152365 was used as an English translation).

Regarding claim 1, Mitsui teaches a battery apparatus (battery pack, 31) having a case (housing unit, 33) having a width, a thickness and a length; a battery cell (rechargeable cell, 1) disposed at the inside of said case; and a battery side terminal

Art Unit: 1795

(electrode terminal, 37, 38) disposed at a surface of said case and connected to a chargeable battery section (battery loading section, 63; see fig. 7), said battery apparatus comprising: engaging pieces (engaging grooves, 54,55) at portions on both sides in a width direction of said case which extend in said length direction while projecting outwardly in said width direction, said engaging pieces configured to engage engaging claws (engagement pieces; see col. 10, lines 4-7) of a battery mounting section of an electronic device and position said case at a position in a thickness direction of said case at said battery mounting section, said engaging pieces disposed at spaced intervals in a length direction (see fig. 1).



However, Ebine teaches a battery terminal structure having a convex portion (terminal pressing rib, 116) projecting in the length direction from an end surface of the

case and extending in the width direction along the end surface of the case, the convex portion disposed at a distance in the thickness direction from the battery-side terminal, and the convex portion being located on a same end surface of the case as the battery-side terminal and extends in the width direction of the case a distance greater than a distance that the electrodes of the battery-side terminal extend in the width direction of case (see fig. 5). As explained above, this limitation is met as long as the convex portion is extends in a width direction greater than the battery terminal extends. It is clear from Fig 5 that the terminal pressing rib (116) extends in a width direction greater than the battery terminal because it comes into contact with terminal positioning ribs (109) that extend along length direction on either side of the battery terminal. The simple substitution of one known element for another is likely to be obvious when predictable results are achieved. See *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1395 – 97 (2007) (see MPEP § 2143, B.). Therefore, since Ebine teaches a known configuration for a battery-side terminal, it would have been obvious to a person of ordinary skill in the art to substitute the terminals taught by Mitsui with the terminal comprising convex portions taught by Ebine in order to increase positional accuracy and dimensional accuracy of both the terminals themselves and engagement of the terminal (see paragraph 9),

Regarding claim 2, Mitsui teaches the battery apparatus as claimed in claim 1, wherein: said battery side terminal (electrode terminal 37, 38) is provided at an end portion of said case in said length direction (see fig. 1). Victor teaches that two of said plurality of engaging pieces are provided on said case at a portion nearer the end portion in said length direction (see fig. 6). However, Victor fails to teach that another one of the engaging pieces is provided at a portion close to the engaging piece provided nearer the end portion of said case where said battery-side terminal is located. However, a person of ordinary skill in the art would know that the battery-side terminal would have to support more weight and it would be preferable to have the middle

engaging piece slightly closer to the battery-side terminal end. Therefore it would be obvious to place the middle engaging piece closer to the batter-side terminal end.

Regarding claim 3, both Mitsui in view of Victor and Ebine teach the battery apparatus as claimed in claim 1, wherein when the battery apparatus is attached to said battery mounting section, movement of said battery apparatus toward said mounting surface is restricted by mating the bottom surface of said case with the mounting surface of said battery mounting section, and movement of the battery apparatus in the direction away from the mounting surface is restricted by engaging the pieces with the engaging claws (see fig. 12 and 1 respectively) (*Mitsui*: see col. 10, lines 4-6; *Victor*: see pg. 3 of provided translation "Battery Pack Mounting Device").

Regarding claim 4, both Mitsui in view of Victor and Ebine teach the battery apparatus as claimed in claim 1, wherein: said case includes a main body portion (*Mitsui*: upper casing half, 34, and mid casing half, 35; see fig. 1; *Victor*: see fig. 1) extending in the length direction with a uniform size in said width direction, and a bottom portion (*Mitsui*: terminal mounting plate, 36; see fig. 1; *Victor*: bottom portion, 12a; see fig. 1) provided at one of thickness directions at a central portion in the width direction of said main body portion and extending in said length direction with a smaller width size than the width of said bottom portion, said bottom surface is formed with a surface of said bottom portion, said plurality of engaging pieces are formed by projecting from said bottom surface portion at both sides in said width direction (*Mitsui*: see fig. 5; *Victor*: see fig. 1), a plurality of concave portions extending in said length direction are formed by said respective engaging pieces (*Mitsui*: see fig. 5; *Victor*: recess, 12c; see fig. 1);

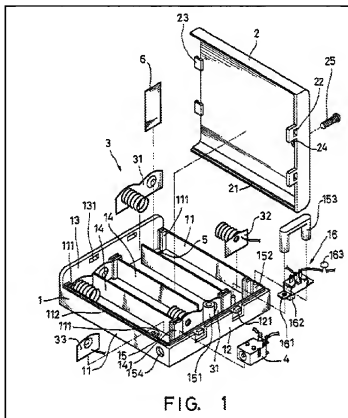
Regarding claim 14, Mitsui in view of Victor and Ebine teaches the batter apparatus as cited in claim 1, wherein the battery-side terminal is provided at an end portion in the length direction of a bottom portion, and the convex portion extends in the width direction above the battery-side terminal. As explained above for claim 1, if the engagement boss and (73) and hole (52) were reversed the battery-side terminal is provided at an end portion in the length direction of a bottom portion, and the convex portion extends in the width direction above the battery-side terminal (see figs. 5 and 7).

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsui in view of Victor and Ebine as applied to claims 1 above, and further in view of Huang (US Pat. Pub. 2003/0027042).

Regarding claim 5, Mitsui in view of Victor fails to teach the battery apparatus as claimed in claim 4, wherein a second convex portion projecting outwardly in said width direction is provided at a side face of the bottom portion where at least two of the engaging pieces among the plurality of engaging pieces are positioned, said second convex portion is formed with a smaller projecting size than said engaging piece.

However, Huang teaches and engaging hook, 23, which inherently contains a second convex portion (the hook portion) as seen in fig. 1. Although Huang does not teach that the convex portion is formed with a smaller projecting size than said engaging piece, the change in form or shape, without any new or unexpected results, is an obvious engineering design (see MPEP § 2144.04). Furthermore, the size of an article is not a matter of invention (see MPEP § 2144.04). Therefore, with the combined

teachings of Mitsui, Victor, and Huang, it would have been obvious to a person of ordinary skill in the art that an engaging claw could contain a convex portion, the two being in contact so that the position of the battery apparatus in the width direction of the cause is determined in said battery mounting section.



Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsui in view of Victor and Ebine as applied to claim 1 above, and further in view of Takeshita et al. (US Pat. No. 6,521,370) (hereinafter "Takeshita").

Regarding claim 15, Mitsui in view of Victor and Ebine fails to teach the battery apparatus as cited in claim 1, further comprising: an identification portion including a recess having a size based on an electrical characteristic of the battery, the recess

configured to receive a projection of the battery mounting section having a size based on a desired electrical characteristic for the electronic device, where the electrical characteristic is at least one of a capacity, a suitable charging current value, and a possibility of quick charge of the battery apparatus.

However, Takeshita teaches a battery apparatus comprising an identification portion including a recess (discrimination recess, 30; see fig. 5) having a size based on an electrical characteristic of the battery, the recess configured to receive a projection (discriminating projection, 73; see fig. 6) of the battery mounting section having a size based on a desired electrical characteristic for the electronic device, in order to determine whether or not the battery loading device is an appropriate battery loading device for the battery pack (see col. 5, lines 55-58). It would have been obvious to a person of ordinary skill in the art that the electrical characteristics one would consider when determining if the battery pack is appropriate for the specific battery loading device would include capacity and suitable charging current value. The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1395 – 97 (2007) (see MPEP § 2143, A.). Therefore, it would have been obvious for a person of ordinary skill in the art to combine the identification portion taught by Takeshita with the batter apparatus taught by Mitsui in order to prevent unsuitable battery packs from being loaded onto specific battery loading devices.

FIG.5

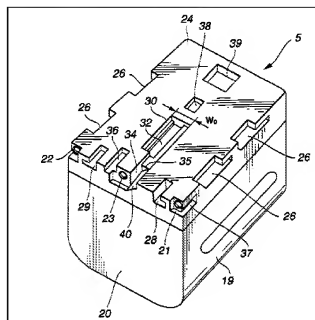
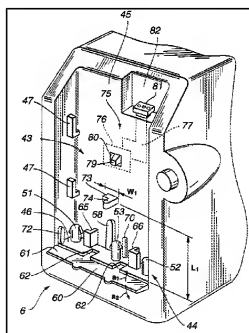


FIG.6



Regarding claim 16, Mitsui in view of Victor, Ebine, and Takeshita teach the battery apparatus as cited in claim 1, further comprising: an identification portion (*Takeshita*: protrusion between recesses 30 and 32) including a projection having a size based on an electrical characteristic of the battery, where the electrical characteristic is at least one of a capacity, a suitable charging current value, and a possibility of quick charge of the battery apparatus. It would have been obvious to a person of ordinary skill in the art that the protrusion would have to have a specific size based on the electrical characteristics of the battery.

Claims 8-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsui in view of Victor and Ebine.

Regarding claim 8, Mitsui teaches an electronic device having a battery mounting section (battery loading section, 63; see fig. 7) on which a battery apparatus is attached, wherein: said battery apparatus includes a case having a width, a thickness and a length; a battery cell (rechargeable cell, 1) housed in the inside of said case; a bottom surface (terminal mounting plate, 36; see fig. 5) positioned at one side in a direction of said thickness of said case; and a battery-side terminal (electrode terminal 37, 38) disposed at a surface of said case and electrically connected to said battery cell, engaging pieces (engaging grooves, 54, 55) extending in a direction of said length while projecting outwardly in a direction of said width are disposed at regular intervals in said length direction at portions on both sides in said width direction of the case.

Mitsui fails to teach **three or more** engaging pieces at portions on both sides in a width direction of said case.

However, Victor teaches a battery pack mounting structure in which the bottom portion of a battery pack has a plurality of engagement protrusions (12b) protruding on either side (see pg. 6 of provided translation "Battery Pack Mounting Device"; see fig. 1). Therefore it would have been obvious to a person of ordinary skill in the art to use three engaging pieces instead of two.

Mitsui also fails to teach a convex portion projecting in the length direction from an end surface of the case and extending in the width direction along the end surface of the case, the convex portion disposed at a distance in the thickness direction from the battery-side terminal, the convex portion being located on a same end surface of the case as the battery-side terminal and extends in the width direction of the case a distance greater than a distance that the electrodes of the battery-side terminal extend in the width direction of case.

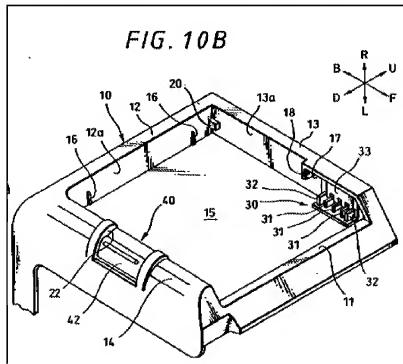
However, Ebine teaches a battery terminal structure (battery side terminal, 120) having a convex portion (terminal pressing rib, 116) projecting in the length direction from an end surface of the case and extending in the width direction along the end surface of the case, the convex portion disposed at a distance in the thickness direction from the battery-side terminal, and the convex portion being located on a same end surface of the case as the battery-side terminal and extends in the width direction of the case a distance greater than a distance that the electrodes of the battery-side terminal extend in the width direction of case (see fig. 5). As explained above, this limitation is

met as long as the convex portion is extends in a width direction greater than the battery terminal extends. It is clear from Fig 5 that the terminal pressing rib (116) extends in a width direction greater than the battery terminal because it comes into contact with terminal positioning ribs (109) that extend along length direction on either side of the battery terminal. The simple substitution of one known element for another is likely to be obvious when predictable results are achieved. See *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, 82 USPQ2d 1385, 1395 – 97 (2007) (see MPEP § 2143, B.). Therefore, since Ebine teaches a known configuration for a battery-side terminal, it would have been obvious to a person of ordinary skill in the art to substitute the terminals taught by Mitsui with the terminal comprising convex portions taught by Ebine in order to increase positional accuracy and dimensional accuracy of both the terminals themselves and engagement of the terminal (see paragraph 9).

Mitsui in view of Victor and Ebine also teaches said battery mounting section (*Ebine*: battery loading portion, 10; see fig. 10B) comprising: a mounting section-side terminal (*Ebine*: main body side terminal, 30) making contact with said battery-side terminal (*Ebine*: 120); and a mounting surface (*Ebine*: bottom surface, 15) with which said bottom surface is mated, said mounting surface has a width of a dimension corresponding to the width of said case, and a length of a dimension greater than the length of said case (*Ebine*: see fig. 13), and at portions on both sides in a width direction of said mounting surface, said battery mounting section engaging claws (*Mitsui*: engaging pieces) are configured to engage said engaging pieces and to position said case in the thickness direction on said mounting surface by matching the width direction

Art Unit: 1795

and the length direction of said case with the width direction and the length direction of said mounting surface (*Mitsui*: see col. 10, lines 4-6; see fig. 12), and to mate the bottom surface of said case with said mounting surface, are disposed in the number corresponding to that of said engaging pieces; and a recess groove (*Ebine*: inside of overhang portion 17, see fig. 10B) configured to receive the convex portion (*Ebine*: terminal pressing rib, 116) of the battery when the battery is mounted in the battery mounting section (*Ebine*: see paragraph 112), the recess groove extending in the width direction of the case a distance greater than a distance that the electrodes of the battery-side terminal extend in the width direction of case. Since the terminal pressing rib extends in a width direction of the case a distance greater than the electrodes of the battery side terminal extend, it is obvious that the recess groove would also extend further than the battery side terminal.



Regarding claim 9, Mitsui in view of Victor and Ebine teaches the electronic device as claimed in claim 8, wherein: said battery-side terminal is provided at an end portion of said case in said length direction. Victor teaches that two of said plurality of engaging pieces are provided on said case at a portion nearer the end portion in said length direction (see fig. 6). However, Victor fails to teach another one of the engaging pieces is provided at a portion close to the engaging piece provided nearer the end portion of said case where said battery-side terminal is located. However, a person of ordinary skill in the art would know that the battery-side terminal would have to support more weight and it would be preferable to have the middle engaging piece slightly closer to the battery-side terminal end. Therefore it would be obvious to place the middle engaging piece closer to the batter-side terminal end.

Mitsui teaches that said mounting section-side terminal is provided at an end portion of said mounting surface in said length direction. Victor teaches that two of said plurality of engaging claws are provided at a portion nearer the end portion of said mounting surface in the length direction. However Victor does not teach that another one of the engaging claws is provided at a portion close to the engaging claw provided nearer the end portion of said mounting surface where the battery- side terminal is located. However, it would be obvious to a person of ordinary skill in the art that the position of the middle engaging claw would correspond to the middle engaging piece.

Regarding claim 10, both Mitsui *and* Victor teach the battery apparatus as claimed in Claim 8, wherein: movement of said battery apparatus toward said mounting surface is restricted by mating the bottom surface of said case with the mounting

surface of said battery mounting section, and movement of the battery apparatus in a direction away from the mounting surface is restricted by engaging the pieces with the engaging claws (see fig. 12 and 1 respectively) (*Mitsui*: see col. 10, lines 4-6; *Victor*: see pg. 3 of provided translation "Battery Pack Mounting Device").

Regarding claim 11, both Mitsui *and* Victor teach the battery apparatus as claimed in Claim 8, wherein: said case includes a main body portion (*Mitsui*: upper casing half, 34, and mid casing half, 35; see fig. 1; *Victor*: see fig. 1) extending in the length direction with a uniform size in said width direction, and a bottom portion (*Mitsui*: terminal mounting plate, 36; see fig. 1; *Victor*: bottom portion, 12a; see fig. 1) provided at one of thickness directions at a central portion in the width direction of said main body portion and extending in said length direction with a smaller width size than the width of said bottom portion, said bottom surface is formed with a face of said bottom portion, said plurality of engaging pieces are formed by projecting from said bottom surface portion at both sides in said width direction (*Mitsui*: see fig. 5; *Victor*: see fig. 1), a plurality of concave portions (*Mitsui*: see fig. 5; *Victor*: recess, 12c; see fig. 1) extending in said length direction are formed by said respective engaging pieces; side surfaces of said bottom surface positioned at both sides in said width direction; and a surface where said main body portion is facing the side surface of the bottom surface, and said engaging claws engages with said engaging piece by being inserted into each of said concave portions (*Mitsui*: see col. 10, lines 4-6; *Victor*: see pg. 6 of provided translation "Battery Pack Mounting Device").

Regarding claim 13, Mitsui teaches the battery apparatus as claimed in claim 11, wherein at least one of said plurality of concave portions includes a stopper barrier for blocking an end portion in the length direction of the concave portion. The terminal mounting plate, 36, includes a structure that blocks an end portion in the length direction of the concave portion (see fig. 5).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsui in view of Victor and Ebien as applied to claim 8 above, and further in view of Huang (US Pat. Pub. 2003/0027042).

Regarding claim 12, Mitsui in view of Victor and Ebien teaches the battery apparatus as claimed in claim 11 respectively, but they do not teach that a second convex portion projecting outwardly in said width direction is provided at a side face of the bottom portion where at least two of the engaging pieces among the plurality of engaging pieces are positioned, said second convex portion is formed with a smaller projecting size than said engaging piece, and in a condition where said engaging claw engages with said engaging piece, said engaging claw and said second convex portion are in contact so that the position of the battery apparatus in the width direction of the case is determined in said battery mounting section. However, Huang teaches an engaging hook, 23, which inherently contains a second convex portion (the hook portion) as seen in fig. 1. Although Huang does not teach that the convex portion is formed with a smaller projecting size than said engaging piece, the change in form or shape, without any new or unexpected results, is an obvious engineering design (see

MPEP § 2144.04). Furthermore, the size of an article is not a matter of invention (see MPEP § 2144.04). Therefore, with the combined teachings of Mitsui, Victor, and Huang, it would have been obvious to a person of ordinary skill in the art that an engaging claw could contain a convex portion, the two being in contact so that the position of the battery apparatus in the width direction of the cause is determined in said battery mounting section.

Claims 17-18, 20, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsui in view of Victor, Ebine, and Takeshita.

Regarding claim 17, as explained above for claim 1, Mitsui in view of Victor teaches a battery apparatus having a case having a width, a thickness and a length; a battery cell disposed at the inside of said case; and a battery-side terminal disposed at a surface of said case and connected to a said chargeable battery section, said battery apparatus comprising: three or more engaging pieces at portions on both sides in a width direction of said case which extend in said length direction while projecting outwardly in said width direction, said three or more engaging pieces configured to engage claws of a battery mounting section and position said case at a position in a thickness direction of said case at said battery mounting section, said three or more engaging pieces disposed at spaced intervals in a length direction; and a convex portion projecting in the length direction from an end surface of the case and extending in the width direction along the end surface of the case, the convex portion disposed in a distance in the thickness direction from the battery-side terminal, and the convex portion

being located on a same end surface of the case as the battery-side terminal and extends in the width direction of the case a distance greater than a distance that the electrodes of the battery-side terminal extend in the width direction of case.

Mitsui in view of Victor and Ebine fails to teach a battery apparatus wherein a cutout portion is formed in an end of a bottom portion of the case, the cutout portion configured to receive a locking device of the battery mounting section.

However, Takeshita teaches a battery apparatus wherein a cutout portion (first and second lock recesses 38,39) is formed in an end of a bottom portion of the case, the cutout portion configured to receive a locking device (lock pawl 79; see col. 9, lines 50-62) of the battery mounting section (see figs. 5 and 6). The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1395 – 97 (2007) (see MPEP § 2143, A.). Therefore it would have been obvious for a person of ordinary skill in the art to combine the locking device taught by Takeshita with the battery apparatus taught by Mitsui in order to more securely attach the battery to the chargeable battery section.

Regarding claim 18, Mitsui in view of Victor, Ebine, and Takeshita teach the battery apparatus as cited in claims 17, wherein the battery-side terminal (37, 38) is provided on a surface of the case at an end portion of the case in the length direction of the case (*Mitsui*: see fig. 1).

Regarding claim 20, Mitsui in view of Victor, Ebine, and Takeshita teach the battery apparatus in claim 17, wherein the bottom portion also includes a recess portion (*Takeshita*: discrimination recess, 30).

Regarding claim 22, Mitsui in view of Victor, Ebine, and Takeshita teaches the battery apparatus as cited in claim 17, further comprising: an identification portion including a recess having a size based on an electrical characteristic of the battery, the recess configured to receive a projection of the battery mounting section having a size based on a desired electrical characteristic for the electronic device, where the electrical characteristic is at least one of a capacity, a suitable charging current value, and a possibility of quick charge of the battery apparatus. Takeshita teaches a battery apparatus comprising an identification portion including a recess (discrimination recess, 30; see fig. 5) having a size based on an electrical characteristic of the battery, the recess configured to receive a projection (discriminating projection, 73; see fig. 6) of the battery mounting section having a size based on a desired electrical characteristic for the electronic device, in order to determine whether or not the battery loading device is an appropriate battery loading device for the battery pack (see col. 5, lines 55-58). It would have been obvious to a person of ordinary skill in the art that the electrical characteristics one would consider when determining if the battery pack is appropriate for the specific battery loading device would include capacity and suitable charging current value. The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1395 – 97 (2007) (see MPEP § 2143, A.). Therefore, it

would have been obvious for a person of ordinary skill in the art to combine the identification portion taught by Takeshita with the batter apparatus taught by Mitsui in order to prevent unsuitable battery packs from being loaded onto specific battery loading devices.

Regarding claim 23, Mitsui in view of Victor and Takeshita teach the battery apparatus as cited in claim 1, further comprising: an identification portion (*Takeshita*: protrusion between recesses 30 and 32) including a projection having a size based on an electrical characteristic of the battery, where the electrical characteristic is at least one of a capacity, a suitable charging current value, and a possibility of quick charge of the battery apparatus. It would have been obvious to a person of ordinary skill in the art that the protrusion would have to have a specific size based on the electrical characteristic of the battery.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsui in view of Victor, Ebine, and Takeshita as applied to claims 17 and 20 above, and further in view of Scharfman et al. (US Pat. No. 2,037,827) (hereinafter "Scharfman").

Regarding claim 21, Mitsui in view of Victor, Ebine, and Takeshita teach the battery apparatus as cited in claim 20, further comprising: a second convex portion in a recess portion (*Takeshita*: protrusion between recesses 30 and 32, see fig. 5).

Mitsui in view of Victor, Ebine, and Takeshita fails to teach the battery apparatus as cited in claim 20, further comprising: a machine name plate located in a recess

portion inside the bottom portion, and including a positioning groove receiving the convex portion of the recess portion.

However, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a machine name plate in the recessed portion of the battery in order to inform the user of the type of battery system that is used in the battery pack. It is well known in the art that the application of a name plate in a recess is advantageous in order to enhance the appearance of the finished product. For example, Scharfman teaches a method of applying indicia, such as a name, in a recess or undercut made in the article and then overlaid by a transparent cover thereby producing a pleasing finished article (see col. 1, lines 25-34). One of ordinary skill in the art would have found it obvious that the name plate would comprise a positioning groove in order to conform to the shape of the recess portion containing the convex portion. The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1395 – 97 (2007) (see MPEP § 2143, A.). Therefore it would have been obvious to include a nameplate on a recessed portion inside the bottom portion, including a positioning groove for receiving the convex portion of the recess portion in order to inform the user of the type of battery system used and to enhance the appearance of the finished product.

Claims 24, 26, 27, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsui in view of Victor, Ebine, and Takeshita.

Regarding claim 24, as explained above in claims 1 and 21 Mitsui in view Victor, Ebine, and Takeshita teaches a battery apparatus having a case having a width, a thickness and a length; a battery cell disposed at the inside of said case; and a battery-side terminal disposed at a surface of said case and connected to said chargeable battery section, said battery apparatus comprising: three or more engaging pieces at portions on both sides in a width direction of said case which extend in said length direction while projecting outwardly in said width direction, said three or more engaging pieces configured to engage claws of said battery mounting section and position said case at a position in a thickness direction of said case at said battery mounting section, said three or more engaging pieces disposed at spaced intervals in a length direction, wherein a bottom portion of the case includes a recess portion (*Takeshita*: 30), the recess portion including a first convex portion (*Takeshita*: protrusion between recesses 30 and 32); and a second convex portion (*Ebine*: terminal pressing rib, 116) projecting in the length direction from an end surface of the case and extending in the width direction along the end surface of the case, the second convex portion disposed in a distance in the thickness direction from the battery-side terminal, and the second convex portion being located on a same end surface of the case as the battery side terminal and extends in the width direction of the case a distance greater than a distance that the electrodes of the battery-side terminal extend in the width direction of case.

Regarding claim 26, Mitsui in view Victor, Ebine, and Takeshita teaches the battery apparatus as cited in claim 24, wherein an end of the bottom portion of the case includes a cutout portion (*Takeshita*: first and second lock recess 38, 39), the cutout portion configured to receive a locking device (*Takeshita*: lock pawl, 79) of the battery mounting section (*Takeshita*: see fig. 5 and 6).

Regarding claim 27, Mitsui in view Victor, Ebine, and Takeshita teaches the battery apparatus as cited in claim 26, wherein the battery-side terminal is provided on a surface of the case at an end portion of the case in the length direction of the case (*Mitsui*: see fig. 5).

Regarding claim 29, as explained above for claim 22, Mitsui in view Victor and Takeshita teaches the battery apparatus as cited in claim 24, further comprising: an identification portion (discrimination recess, 30; see fig. 5) including a recess having a size based on an electrical characteristic of the battery, the recess configured to receive a projection of the battery mounting section having a size based on a desired electrical characteristic for the electronic device, where the electrical characteristic is at least one of a capacity, a suitable charging current value, and a possibility of quick charge of the battery apparatus.

Regarding claim 30, as explained above for claim 23, Mitsui in view Victor, Ebine, and Takeshita teaches the battery apparatus as cited in claim 24, further comprising: an identification portion including a projection having a size based on an electrical characteristic of the battery, where the electrical characteristic is at least one of a

capacity, a suitable charging current value, and a possibility of quick charge of the battery apparatus.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsui in view of Victor, Ebine, and Takeshita as applied to claims 24 above, and further in view of Scharfman et al. (US Pat. No. 2,037,827) (hereinafter "Scharfman").

Regarding claim 25, Mitsui in view Victor, Ebine, and Takeshita fails to teach a machine name plate located on a recess portion inside the bottom portion and including a positioning groove receiving the first convex portion of the recess portion.

However, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a machine name plate in the recessed portion of the battery in order to inform the user of the type of battery system that is used in the battery pack. It is well known in the art that the application of a name plate in a recess is advantageous in order to enhance the appearance of the finished product. For example, Scharfman teaches a method of applying indicia, such as a name, in a recess or undercut made in the article and then overlaid by a transparent cover thereby producing a pleasing finished article (see col. 1, lines 25-34). One of ordinary skill in the art would have found it obvious that the name plate would comprise a positioning groove in order to conform to the shape of the recess portion containing the first convex portion. The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1395 – 97 (2007) (see MPEP § 2143, A.). Therefore it would

have been obvious to include a nameplate on a recessed portion inside the bottom portion, including a positioning groove for receiving the first convex portion of the recess portion in order to inform the user of the type of battery system used and to enhance the appearance of the finished product.

Response to Arguments

Applicant's arguments, filed 8/24/09, with respect to the rejection(s) of claim(s) 1-18, 20-27, 29, and 30 under Mitsui in view of Victor, Huang, and Takeshita have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Mitsui in view of Victor, Ebine, Huang, and Takeshita.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ASHLEY KWON whose telephone number is (571)270-7865. The examiner can normally be reached on Monday to Thursday 7:30 - 6 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ASHLEY KWON/
Examiner, Art Unit 1795

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795